STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: April 9, 2013

FROM: Matt Urban
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Walpole, 25781

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Highway Maintenance District 4 for the subject Minimum impact project. This project is classified as minimum per Env-Wt 904.07(c). The project consists of replacing twin 36" RCP's with an 8'x6' Box embedded 1' on County Road in the Town of Walpole, NH.

The lead people to contact for this project are John Kallfelz, Assistant District Engineer, District 4 (352-2302 or jkallfelz@dot.state.nh.us) or Matt Urban, Wetlands Program Specialist, Bureau of Environment (271-3226 or murban@dot.state.nh.us).

A payment voucher has been processed for this application (Voucher #251436) in the amount of $459.60.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Specialist, Bureau of Environment.

MRU:mru
Enclosures

cc:
Bureau of Environment (original)
Town of Walpole (4 copies via certified mail)
Ron Crickard, Bureau of Environment

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DEPARTMENT OF ENVIRONMENTAL SERVICES
WETLANDS BUREAU
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588
Website: http://des.nh.gov/organization/divisions/water/wetlands/index.htm
Email: wetmail@des.nh.gov

Standard Dredge and Fill Application Form
for Department of Transportation Projects

The Standard Dredge and Fill application package to be submitted to DES consists of:

1. Application form (this document).
2. Checklist(s) with required information attached. ("Checklist for Submission of your Standard Dredge and Fill Application," and if appropriate, "Compensatory Mitigation Information and Checklist").

Type or print clearly -- missing information may result in your application review being delayed if it is considered administratively incomplete. If you are completing this as a Word version on your computer, use your **tab key** to move through the document to enter data in the appropriate areas.

If you have questions about any terms used, check the Definitions section of the Instructions.

1.	Name of Landowner* (last, first, middle initial)	Owner daytime phone number	Owner fax number	Owner email
	NH Department of Transportation	(603) 271-3734	(603) 271-7199	

Landowner (permanent) mailing address or PO Box	Town/City (owner mailing address)	State	Zip code
7 Hazen Drive, PO Box 483	Concord	NH	03302

2.	Name of Applicant (Bureau or District)	Applicant phone number	Applicant fax number	Applicant email
	John Kallfelz, NHDOT District 4	603-352-2302	603-352-7725	jkallfelz@dot.state.nh.us

Applicant street address	Applicant town/city	State	Zip code
19 Base Hill Road	Swanzey	NH	03446-3401

3.	Company and Name of Agent	Agent phone number	Agent fax number	Agent email
		( )	( )	

Agent Street mailing address or PO Box	Town/City (agent mailing address)	State	Zip code

4.	Location(s) of the proposed work (fill in below)							
Street address(es) or nearest intersection(s)			Approximately 100 feet east of the junction of County Road, and Watkins Hill Road, Walpole, NH.					
Town/City	Walpole	Tax map	N/A	Block	N/A	Lot number(s)		N/A

5.	For projects classified as minor or major impact, are there any vernal pools located within the existing or proposed right-of-way or easement areas within the limits of the project? If "Yes," identify and label the location(s) of vernal pool(s) on the project plans.	Circle one: Yes / (No)

6.	Based on information obtained from the Natural Heritage Bureau (NHB), are there any state or federal threatened or endangered species or exemplary natural communities in or near the subject project? Provide the NHB file number: NHB13-0333 and attach the documentation (letter/memo & map) Natural Heritage information can be obtained at www.nhnaturalheritage.org. Click on "Services" for links to: 1) the DataCheck web tool, or 2) a hard copy form to obtain the required letter and map from NHB. If you do not have Internet access, you may contact NHB directly at (603) 271-2215 x 323 for information about obtaining the required documentation.	**Circle one:** **Yes / (No)**
7.	If there are any state or federal threatened or endangered species or exemplary natural communities located in or near the subject project, please provide a letter from NHB stating that the applicant has consulted with NHB. The letter should indicate either there is no impact, or include NHB guidelines for preventing or mitigating impacts.	

8. Jurisdictional areas(s) where work is proposed; check box(es) below. Check the definitions in the instructions for additional information. ***(If your resource type is not listed, contact DES for guidance):***

Nontidal wetland: swamp, wet meadow, etc.		Bank of surface water body		Intermittent (seasonal) stream		Name of water body from USGS topographic map: Unnamed	
Vernal pool		Lake or pond		Perennial stream or river	X	Tributary to: Houghton Brook	
Upland tidal buffer zone		Sand dune		Tidal wetland		Prime Wetland Buffer (within 100 feet of prime wetland)	
Freshwater marsh		Bog/fen (peatland)		Atlantic Ocean		Municipally designated prime wetland	

9.	**Provide a brief description** of all proposed work. Attach a separate page if necessary. Remove existing twin 36" pipes and headwalls and replace with a new pre-cast concrete box culvert and headwalls. Box culvert will be 8'wide x 6' tall with 1' of embedment, and 36' long. See attached Construction Sequence.	
10.	Does the project require compensatory mitigation to offset unavoidable impacts to wetlands? If **Yes**, attach a copy of the completed **Mitigation Checklist**.	**Yes / (No)**
11.	Have you requested a waiver of any wetland rules per Env-Wt 204? If **Yes**, attach your waiver request to this application.	**Yes / (No)**
12.	Is there any DES emergency authorization associated with this project? Are you aware of any DES enforcement issues related to this project? If **Yes**, provide the file number(s): _____	**Yes / (No)**
13.	Explain why it is necessary to impact a wetland or other jurisdictional area to construct your project. The existing pipes have shifted over time and are aging, the existing concrete headwalls are failing and everything needs to be replaced to preserve the safety of the highway.	

14.	Explain why your project design proposes less environmental impact on areas in DES Wetlands jurisdiction than other alternatives. What other alternatives were considered? (Attach a separate page if you are not completing this expandable box on a computer) The project proposes a box culvert with an embedded bottom to provide a more environmentally sensitive solution. We also considered replacing the twin 36" pipes with twin 48" pipes.

15. Amount of Impact Proposed By Jurisdictional Area

Indicate whether **permanent** or **temporary** impacts. This information is necessary to calculate the fee and classify your project. Leave box blank if not applicable to your proposed project.

Jurisdictional area	Impact Type			
	Temporary	Permanent	Total	Unit
Wetlands				sq. ft.
Prime wetland				sq. ft.
Vernal pool				sq. ft.
Prime Wetland Buffer (within 100 feet of designated prime wetland)				sq. ft.
Stream or River				
Bank of stream or river	60	65	125	x linear feet
(OHW-TOB)	260	540	800	x sq. ft.
Bed of perennial stream	60	180	240	x linear feet
(below OHW)	400	1098	1,498	x sq. ft.
Intermittent Stream				linear feet
(below OHW)				sq. ft.
Bank of Lake (for beach construction & replenishment, bank stabilization)				
Shoreline (see following page for how to calculate this average length)				linear feet
Dredge/fill within bank (NHW-TOB)				sq. ft.
Dredge/fill within bank (NHW-TOB)				cubic yards
Lake or Pond (below full lake elevation) Impacts for docks and structures listed in item 15 are entered below.				
Shoreline subject to impacts				linear feet
				sq. feet
Dredge or fill of lakebed (below NHW)				cubic yards
				sq. ft.
Sand dune				sq. ft.
Tidal wetland				sq. ft.
Upland tidal buffer zone				sq. ft.
Undeveloped?/ Developed?				

(choose one or both, as appropriate)				

16. Calculate and provide length of shoreline frontage.
Shoreline frontage is the average of two distances, 1) the actual natural navigable shoreline footage, and 2) a straight line drawn between property lines, both of which are measured at the normal high water line.

(a) Pin to pin distance (linear feet)	(b) Actual natural navigable shoreline (from pin to pin)	(a) + (b) = 2	Shoreline frontage (linear feet)

17. Enter the information below if you are proposing any **docking structures.** Your plans must show proposed and existing docking structures.

Docking structures (proposed)	Square Feet
Surface area of all **permanent** structures:	N/A
Surface area of all **seasonal** structures:	N/A

18. Other DES Permitting Requirements (*write in "Yes" or "No"*)

N/A **Have you addressed requirements of Comprehensive Shoreland Protection Act (CSPA), RSA 483-B?**
If your property is in the "protected shoreland" -- the area that is within 250 feet of a fourth order stream, a designated river, a lake or pond 10 acres or greater in size (on the DES *Official List of Public Waters)*, or tidal water, you will need to comply with the requirements of the Comprehensive Shoreland Protection Act (CSPA).

What is considered "protected shoreland"? To determine if your property is located in "protected shoreland," go to www.des.nh.gov/cspa or the following websites:

- A "fourth order" or larger stream or river (www.des.nh.gov/cspa).
- Any river or river segment designated as protected under the N.H. Designated Rivers Program, RSA 483 (www.des.nh.gov/rivers/).
- Public waters (www.des.nh.gov/Dam/)
- Tidal waters.

As of July 1, 2008, projects that involve construction, excavation, or filling within the protected shoreland, require a DES Shoreland Permit, unless the work is specifically permitted under a Wetlands Permit, OR exempted under Rule Env-Wq 1406.03 or Env-Wq 1406.04 (see des.nh.gov/rules/desadmin_list.htm#env-wq1400), and a DES Alteration of Terrain permit 50,000 square feet if any part of disturbance is within the protected shoreland. For more information: www.des.nh.gov/AOT/ and RSA 485-A:17.

N/A **Does this project require a DES Alteration of Terrain (AoT) permit?** If yes, does this application and the other application reflect the same project area in its entirety? ***(N/A per Memorandum of Agreement dated April 16, 2003.)***

N/A **Does this project require a DES Subdivision or Subsurface Disposal System permit(s)?** If yes, does this application and the other application reflect the same project area in its entirety?
Date of Subsurface/Subdivision application submittal to DES: _____
DES Subsurface/Subdivision File number: _____

19. In accordance with RSA 482-A:3, XIV (b), I, John Kallfelz, hereby authorize DES to communicate all matters relative to this application electronically with the individual identified below at the email address identified below. I agree to send an electronic return/read receipt of all emails sent by the department and understand that the department will do the same. I also agree that DES will be notified immediately of any change in the email address identified below. Please note that DES limits the size of documents that can be received or stored electronically. Any submittals that have a file size over 5 MB must be provided in hard copy.

(Check one box only and supply email address)

☐ Landowner email: _____ ☑ Applicant email: jkallfelz@dot.state.nh.us

☐ Agent email: _____ ☑ NHDOT Bureau of Environment email: murban@dot.state.nh.us

20. FILING FEE: A check or money order payable to the NH DES Wetlands Bureau must accompany this application. The minimum fee is $200. Minor and major impact projects are charged at the rate of: $0.20 per square foot of requested impact (if less than 1,000 square feet of impact is proposed, the minimum fee of $200 applies). All applications for shoreline structures shall include a base fee of $200. In addition, minor and major impact shoreline projects shall include fees charged at the rate of: $0.20 per square foot for requested dredge or fill impacts; $1 per square foot for requested seasonal docking structure; and $2 per square foot for requested permanent docking structure. The application will be considered administratively incomplete until the required fee is paid in full.

21. APPLICANT SIGNATURE. By signing this application, I am certifying that:

1) All abutters have been identified in accordance with the definition given in the instructions and I or my agent have/has sent notices to those abutters by Certified Mail. N/A – not required for public road projects per Env-Wt 501.01(c).

2) I have read and provided the required information outlined in Env-Wt 302.04 and listed on the "Checklist for Submission of Your Standard Dredge and Fill Application," dated June 2008.

3) I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.

4) I have reviewed the information being submitted and that to my knowledge the information is true and accurate.

5) I have appropriately coordinated with the NH State Historic Preservation Officer.

6) I authorize the municipal conservation commission to inspect the site of the proposed project.

7) I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.

	John Kallfelz	2/8/2013
Signature of applicant(s)	**Print applicant's name(s)**	**Date**
Signature of authorized agent (if applicable)	**Print agent name**	**Date**

22. TOWN CLERK SIGNATURE: I hereby certify that the applicant has filed five sets of all materials with the town/city of N/A as required by Chapter 482-A:3, and I have received and retained certified postal receipts (or copies) for all abutters identified by the applicant. Upon signing the application below, I will forward immediately by certified mail to the DES the original application materials, including the filing fee, and distribute the three copies to each of the following: the local governing body, the municipal planning board, if any, and the municipal conservation commission, if any. Town clerk retains one copy.

N/A – applications for public road projects are submitted directly to the NHDES and copies are sent to the town/city.	
Signature of town/city clerk	**Date**

For DES Office Use Only:

Fee received (amount): _____ DES File # _____ Name on check: _____

date of check	date check received	check#	amount	initials

Additional check: Date of check: _____ Date check received: _____ Check number: _____ Check amount: _____

New Hampshire Department of Transportation
Bureau of Highway Maintenance
Project, # 25781
Env-Wt 302.04 Requirements for Application Evaluation

1. **The need for the proposed impact;**
   The existing twin 36" pipes and headwalls are in need of replacement. The pipes are showing signs of failure and if they were to completely fail it would be a concern for public safety.

2. **The alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site;**
   A few alternatives were considered for this project. Alternatives included an in kind replacement of twin 36" pipes, replacing the twin pipes with twin 48"pipes, and the do nothing alternative. The two twin pipe replacement projects had roughly the same impact area as the preferred proposed 8' x 6' box replacement. The reason the proposed 8'x 6' box was preferred was because it was least impacting when taking into consideration the passage of aquatic organisms as well.

3. **The type/classification of the wetlands involved;**
   R3UB1 (Riverine, Upper Perennial, Unconsolidated Bottom, Cobble Gravel)
   Bank

4. **The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters;**
   The area of proposed impacts are located on a segment of an unnamed first order stream that becomes Houghton Brook which over the course of approximately 3 miles outlets to the Connecticut River.

5. **The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area;**
   The proposed wetlands to be impacted are not considered rare. The upper perennial stream is common throughout the state. The integrity of this stream will not be impacted as a result of the proposed work.

6. **The surface area of the wetlands that will be impacted;**
   540 s.f. Banks
   1098 s.f. Wetland
   660 s.f. Temporary

7. **The impact on plants, fish, and wildlife including:**
   a. Rare, special concern species; **No rare or special concern species were identified within the project areas.**
   b. State and federally listed threatened and endangered species; **No State or Federally listed threatened or endangered species were identified within the project area.**
   c. Species at the extremities of their ranges; **No species at the extremities of their ranges were identified within the project area.**
   d. Migratory fish and wildlife; **No migratory fish or wildlife were identified within the project area.**
   e. Exemplary natural communities identified by the New Hampshire Natural Heritage Inventory (NHI)- Department of Resources and Economic Development. **No**

exemplary natural communities were identified by NHNHI within the project area.

f. Vernal Pools; **No vernal pools were identified within the project area.**

The results of the NH Natural Heritage Bureau database review are enclosed. This review determined that there were no records within the project area.

8. **The impact of the proposed project on public commerce, navigation and recreation;**
The project as proposed will not have an impact of public commerce, navigation, or recreation. The stream that is to be impact is not navigable, nor is it used for recreation of any sort. The project will maintain traffic and/or detours if necessary so as to not have an effect on public commerce.

9. **The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake the applicant would be required to indicate the type of material to be utilized and the effect of the construction of the wall on the view of other users of the lake;**
The project would replace the existing wing walls, which are in poor shape and aesthetically unpleasing with new pre-cast wing walls, which will improve the general aesthetic value.

10. **The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel the applicant would be required to document the extent to which the dock would block or interfere with the passage through this area;**
The project will maintain traffic and/or detours if necessary so as to not have an effect on public rights of passage or access.

11. **The impact upon abutting owners pursuant to RSA 482-A, II. For example, if an applicant is proposing the rip-rapping of a stream the applicant would be required to document the effect of such work on upstream and downstream abutting properties;**
The project area has been reviewed to determine if going from the twin 36" culverts to the 8x6 box would have an impact upstream or downstream. It is in the Department's engineering judgment that the proposed action will not have lasting upstream or downstream impacts to abutting property owners.

12. **The benefit of a project to the health, safety, and well being of the general public;**
The project as proposed will improve the health and safety for the traveling public. The existing structure is in failing condition and the guardrail at the crossing is not up to the current safety standards. The proposed project will bring this section of roadway back up to a safer standard for the public.

13. **The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands he/she would be required to document the impact of the proposed fill on the amount of drainage entering the site**

versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site;
The project as proposed will include the use of BMP's throughout the construction of the proposed box structure. This will ensure that the water quality is the same exiting the site as it is entering. The quantity of water entering and exiting the site is not anticipated to change as a result of the proposed work.

14. **The potential of a proposed project to cause or increase flooding, erosion, or sedimentation;**
The project should not increase the potential for flooding, erosion, and sedimentation. By increasing the size of the existing structure the proposed box will help reduce the potential further erosion, and sedimentation issues that one would expect to see with an undersized structure.

15. **The extent to which a project that located in surface waters reflects or redirects current or wave energy which might cause damage or hazards;**
The project as proposed will not reflect or redirect current or wave energy whereby causing damage. The location of the proposed box will be in the same location as the existing pipes.

16. **The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owned only a portion of a wetland would document his percentage of ownership of that wetland and the percentage of that ownership that would be impacted;**
There are no concerns for the total wetland complex should there be cumulative impacts resulting from abutting property owners. The likelihood of this occurring in this particular location is highly unlikely.

17. **The impact of the proposed project on the values and functions of the total wetland or wetland complex;**
The project as proposed will not impact the current functions and values associated with this segment of unnamed stream. The project is likely to improves the wetland function and value by improving the opportunity for aquatic organism passage.

18. **The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication;**
This project is not located in or near any of the following Natural Landmarks listed on the National Register: Lake Umbagog East Inlet and Floating Island, Pondicherry Wildlife Refuge, Franconia Notch, Nancy Brook Scenic Area, Heath Pond Bog, Madison Boulder, White Lake Pitch Pine Forest, Mount Monadnock, Rhododendron Natural Area, and Spruce Hole Bog.

19. **The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.**
    The proposed project is not located in an area named in acts of congress or presidential proclamations.

20. **The degree to which a project redirects water from one watershed to another.**
    The proposed project will not redirect water from one watershed to another. The watershed for this area is 294.4 acres which makes it a tier 2 watershed. The proposed project will not change the size of this watershed.

U.S. Army Corps of Engineers
New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		x
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	x	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		x
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	x	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		x
2.5 The overall project site is more than 40 acres.		x
2.6 What is the size of the existing impervious surface area?	N/A	
2.7 What is the size of the proposed impervious surface area?	N/A	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	N/A	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		x
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		x
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		x
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		x
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	x	

4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		x
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N/A
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?		x

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

NH Department of Transportation
Bureau of Highway Maintenance
Project, # 25781

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

- In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding? **No, the crossing that is proposed to be replaced has never demonstrated a history or flooding. The need for replacement was brought on by sever deterioration of the existing crossing over time and was not prompted in response to any flooding.**

- The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project. **The twin 36" pipes will be upgraded to an 8' x 6' box culvert with 1' of embedment.**

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a **minimum** impact project if:
The crossing does not diminish the hydraulic capacity of the crossing. **Hydraulic capacity is increased.**
The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage. **The upgrade will increase the potential for aquatic life passage.**
The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;
In effort to ensure that the project is not a barrier to sediment transport, the Department has proposed to increase the size of the structure. The larger 8x6 box culvert will be able to pass sediment better than the existing twin 36" pipes.

(b) Prevent the restriction of high flows and maintain existing low flows;
The Department using its best engineering judgment has determined that the larger hydraulic opening that is provided with the 8x6 box structure will accommodate both low and high flows.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
The Department has proposed to upgrade the twin 36" structure to an 8x6 box structure and in doing so will increase the potential for aquatic organism passage.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;
The existing twin 36" structure never demonstrated that there was an overtopping of banks or flooding in this area. The increase hydraulic opening should further prevent any potential for upstream flooding or overtopping of the banks. The Department does not anticipate that the increased opening will result in any downstream impacts either.

(e) Preserve watercourse connectivity where it currently exists;
Replacing the existing twin 36"RCP's with the 8x6 box structure will not alter the watercourses connectivity. The connectivity will remain where it currently exists. The embedded box structure will improve connectivity for aquatic organisms as well.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;
Removing the existing twin pipe structures that are likely an impediment will improve connectivity for aquatic organisms.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and
The project as proposed will not cause any erosion, aggradation, or scour as a result of the proposed work. By properly sizing the replacement structure all potential for these types of issues to occur as a result of the crossing will be eliminated.

(h) Not cause water quality degradation.
The project will not affect water quality. The Department will implement BMP's throughout construction to ensure that the water exiting the site is as clean as when it entered.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a **minor** impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. **The project will not adversely impact the stream bank stability. To ensure that the site is stable the Department is proposing to install inlet and outlet stone protection to prevent erosion that may lead to stream bank instability.**

The crossing does not cause an increase in the frequency of flooding or overtopping of banks. **The project will not increase the frequency of flooding.**

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

USGS New Hampshire StreamStats

Streamstats Ungaged Site Report

Date: Tue Apr 2 2013 11:01:18 Mountain Daylight Time
Site Location: New_Hampshire
NAD27 Latitude: 43.0366 (43 02 12)
NAD27 Longitude: -72.3902 (-72 23 25)
NAD83 Latitude: 43.0367 (43 02 12)
NAD83 Longitude: -72.3897 (-72 23 23)
Drainage Area: 0.46 mi2

Peak Flows Region Grid Basin Characteristics			
100% Peak Flow Statewide SIR2008 5206 (0.46 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.46 (below min value 0.7)	0.7	1290
Mean April Precipitation (inches)	3.557	2.79	6.23
Percent Wetlands (dimensionless)	0.0000	0	21.8
Stream Slope 10 and 85 Method (feet per mi)	477	5.43	543

= 294 Acres
= Tier 2

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

LowFlows Region Grid Basin Characteristics			
100% Low Flow Statewide (0.46 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.46 (below min value 3.26)	3.26	689
Mean Basin Slope from 30m DEM (percent)	15.839	3.19	38.1
Maximum Basin Elevation (feet)	1595.591	260	6290
Percent Coniferous Forest (percent)	29.4671	3.07	56.2
Jan to Mar Basin Centroid Precip (inches)	7.32	5.79	15.1
Mean Annual Temperature (degrees F)	44.276	36	48.7
Jun to Oct Mean Basinwide Temp (degrees F)	60.814	52.9	64.4
Jun to Oct Gage Precipitation (inches)	18.3	16.5	23.1
Percent Mixed Forest (percent)	28.7774	6.21	46.1
Mar to May Gage Precipitation (inches)	8.7	6.83	11.5

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

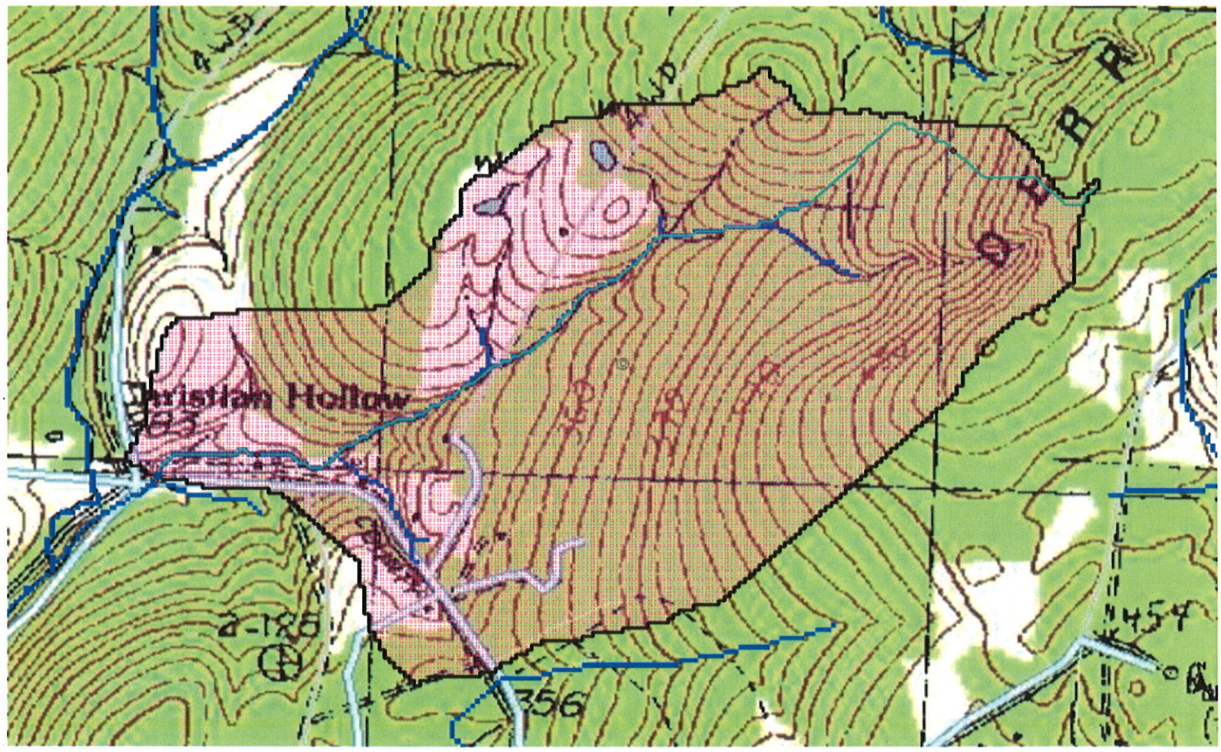
Peak Flows Region Grid Streamflow Statistics					
Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	29.4		3.2		
PK5	51.8		4.7		
PK10	71.6		6.2		
PK25	99.7		8		
PK50	123		9		
PK100	152		9.8		
PK500	224		11		

LowFlows Region Grid Streamflow Statistics					
Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D60	0.21				
D70	0.13				

D80	0.0693				
D90	0.0306				
D95	0.0169				
D98	0.00935				
M7D2Y	0.0157				
D60SPR	1.08				
D60SUM	0.0422				
D60WIN	0.22				
D70SPR	0.84				
D70SUM	0.0291				
D70WIN	0.18				
D80SPR	0.62				
D80SUM	0.0229				
D80WIN	0.16				
D90SPR	0.43				
D90SUM	0.0131				
D90WIN	0.12				
D95SPR	0.31				
D95SUM	0.00812				
D95WIN	0.0972				
D98SPR	0.22				
D98SUM	0.00684				
D98WIN	0.0836				
M7D10Y	0.00398				
D60FALL	0.47				
D70FALL	0.35				
D80FALL	0.26				
D90FALL	0.17				
D95FALL	0.1				
D98FALL	0.0583				
M7D2Y_FAL	0.25				
M7D2Y_SPR	0.26				
M7D2Y_SUM	0.0156				
M7D2Y_WIN	0.17				
M7D10Y_FAL	0.0993				
M7D10Y_SPR	0.13				
M7D10Y_SUM	0.00399				
M7D10Y_WIN	0.0863				

USGS New Hampshire StreamStats

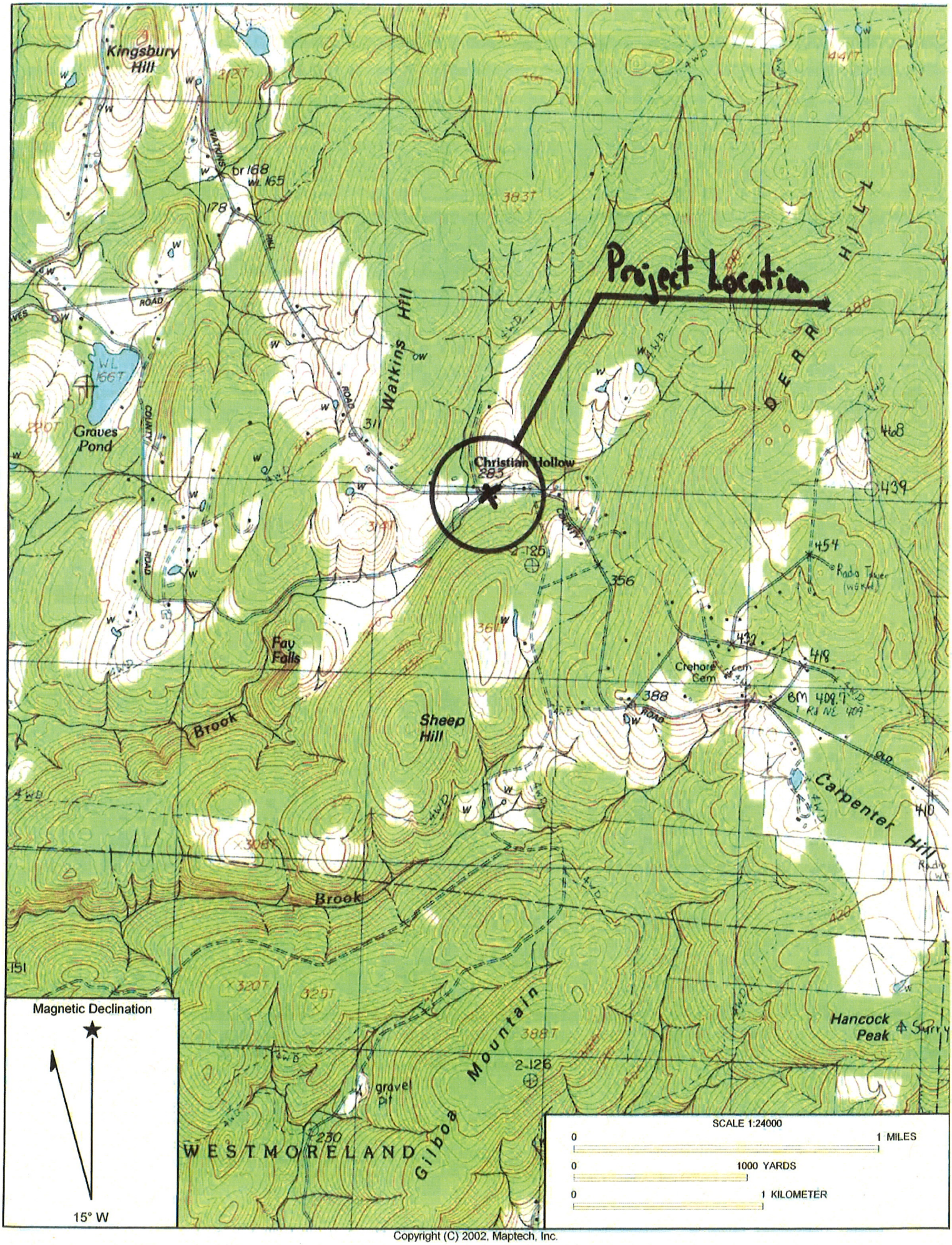
StreamStats Print Page



Explanation

- NHDHGage2
- NHDHDam2
- GlobalWatershedPoint
- Slp1085Point
- LongestFlowPath3D
- GlobalWatershed
- Stream Grid
- ExcludePoly

- Gaging Station, Continuous Record
- Low Flow, Partial Record
- Peak Flow, Partial Record
- Peak and Low Flow, Partial Record
- Stage Only
- Low Flow, Partial Record, Stage
- Miscellaneous Record
- Unknown



New Hampshire Natural Heritage Bureau

To: Matt Urban
7 Hazen Dr.
Concord , NH 03301

Date: 1/18/2013

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 1/18/2013

NHB File ID: NHB13-0333 Applicant: Matt Urban

Location: Tax Map(s)/Lot(s):
Walpole

Project Description: Replace Twin 48 RCP's

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 1/17/2014.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
PO Box 1856
Concord NH 03302-1856

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB13-0333

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
PO Box 1856
Concord NH 03302-1856

Walpole (405), County Road Culvert Replacement and Headwall Reconstruction.
Dredge & Fill Permit Photo's
4/28/09

Twin 36" RCP outlet.

Outlet of twin 36" RCP, deteriorating headwall

Outlet of twin 36" RCP, stream bed.

Inlet stream bed to twin 36" RCP.

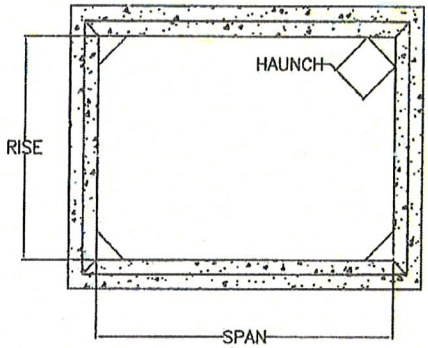
Inlet to twin 36” RCP

Typical Pre-Cast Box information.

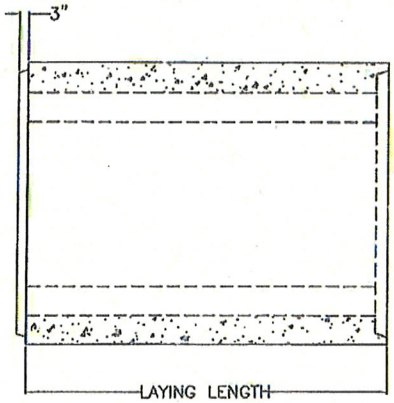
11 BUXTON INDUSTRIAL DRIVE
PO BOX 870
HENNIKER, NH 03242
Phone (603) 428-3218
Fax (603) 428-7547
1-800-322-6949
www.michiecorp.com

C O R P O R A T I O N

PRECAST CONCRETE BOX CULVERT



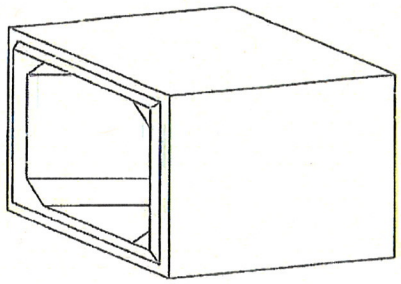
FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. CONCRETE: 5,000 PSI @ 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150.
2. MEETS OR EXCEEDS REQUIREMENTS OF ASTM C-789 OR C-850.
3. REINFORCING TO BE PER ASTM A-615, GRADE 60 DEFORMED BLACK BARS.
4. MAXIMUM LAY LENTGH SHALL BE 8'-0".
5. OTHER SIZES AVAILABLE UPON REQUEST.



ISOMETRIC VIEW

SPAN FT.	RISE FT.	AREA SQ. FT.	EQUIVALENT ROUND DIAMETER
5	3	14.56	51.67
5	4	19.56	59.86
5	5	24.56	67.10
6	3	17.56	56.74
6	4	23.56	65.72
6	5	29.56	73.62
6	6	35.56	80.75
7	3	20.56	61.40
7	4	27.56	71.08
7	5	34.56	79.60
7	6	41.56	87.29
7	7	48.56	94.36
8	3	23.56	65.72
8	4	31.56	76.07
8	5	39.56	85.17
8	6	47.56	93.38
8	7	55.56	100.93
8	8	63.56	107.95
9	3	26.56	69.78
9	4	35.56	80.75
9	5	44.56	90.39
9	6	53.56	99.10
9	7	62.56	107.10
9	8	71.56	114.54
9	9	80.56	121.53
10	3	29.56	73.62

SPAN FT.	RISE FT.	AREA SQ. FT.	EQUIVALENT ROUND DIAMETER
10	4	39.56	85.17
10	5	49.56	95.32
10	6	59.56	104.50
10	7	69.56	112.93
10	8	79.56	120.78
10	9	89.56	128.14
10	10	99.56	135.11
11	3	32.56	77.26
11	4	43.56	89.37
11	5	54.56	100.02
11	6	65.56	109.64
11	7	76.56	118.48
11	8	87.56	126.70
11	9	98.56	134.43
11	10	109.56	141.73
11	11	120.56	148.68
12	3	35.56	80.75
12	4	47.56	93.38
12	5	59.56	104.50
12	6	71.56	114.54
12	7	83.56	123.78
12	8	95.56	132.37
12	9	107.56	140.43
12	10	119.56	148.05
12	11	131.56	155.31
12	12	143.56	162.24

Typical Details for Pre-Cast box and wings.

11 BUXTON INDUSTRIAL DRIVE
PO BOX 870
HENNIKER, NH 03242
Phone (603) 428-3218
Fax (603) 428-7547
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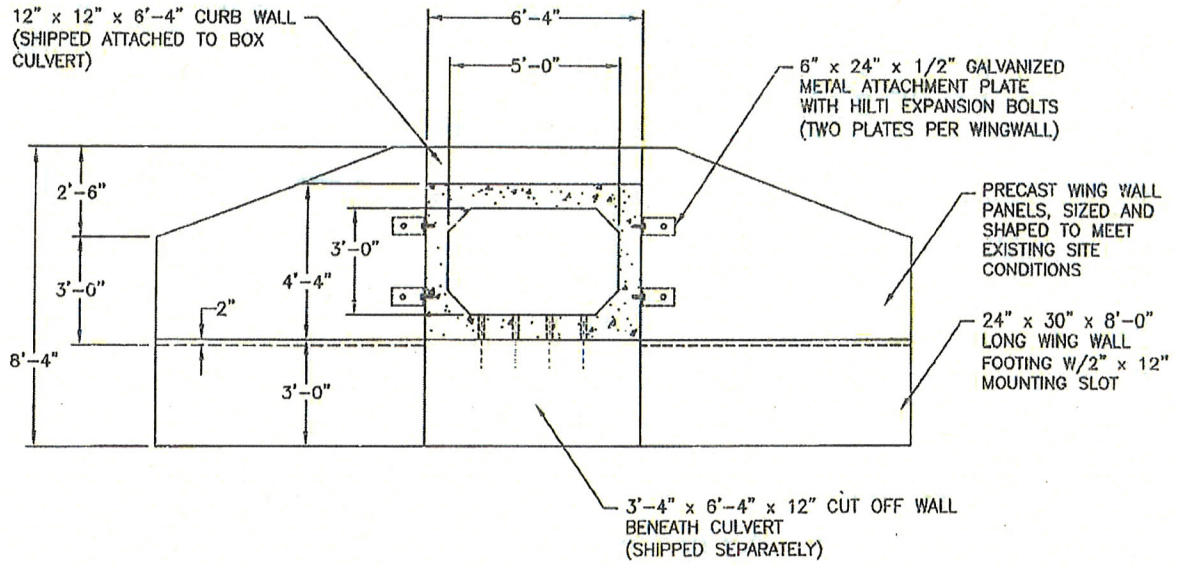
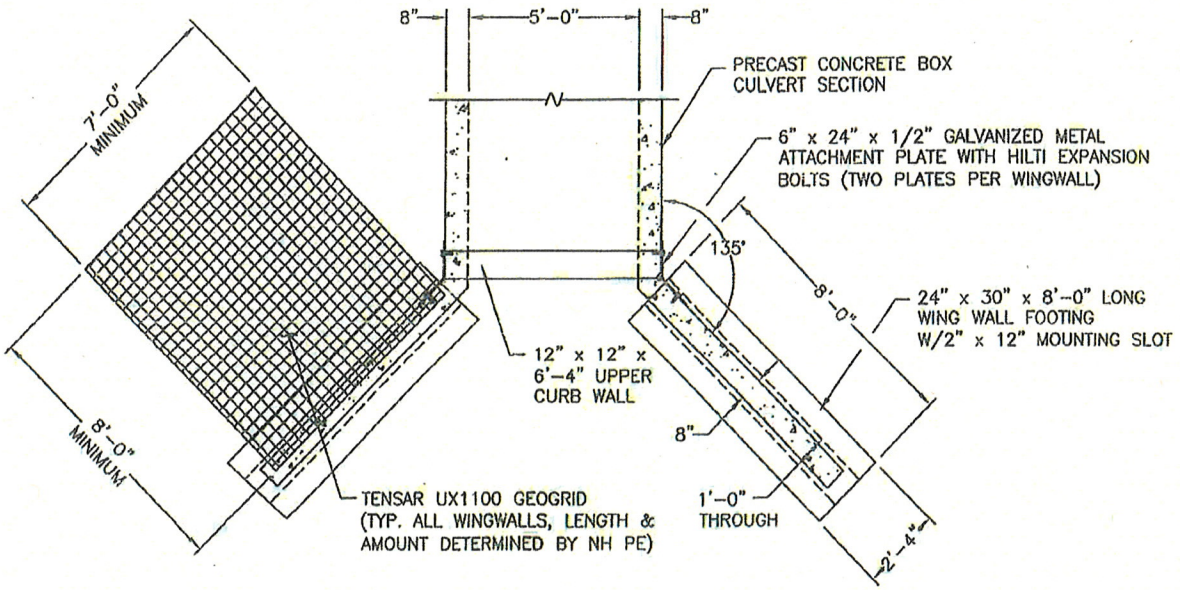
C O R P O R A T I O N

PRECAST CONCRETE BOX CULVERT WITH WING WALLS



FRONT ELEVATION



GEOGRID SHOWN ON ONE SIDE ONLY FOR DRAWING CLARITY.

FRONT PLAN

New Hampshire Department of Transportation
Bureau of Highway Maintenance, Project # 25781
Walpole NH
Twin Culvert Replacement

Construction Sequence

1. Install erosion control measures upstream and downstream (silt fence, hay bales, sand bags, etc.). If water flow exists, dam the flow and pump around the work area as needed.

2. Close road and remove existing twin 36" culverts and headwalls.

3. Prepare sub-grade and install new pre-cast box culvert and wing walls.

4. Backfill and make safe for traffic. Open road to traffic.

5. Prepare sub grade for paving utilizing flaggers and alternating traffic, pave binder.

6. Install guardrail.

7. Pave top.

8. Maintain temporary erosion control measures until area is stabilized.

Note: